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FOREST SERVICE

U.S. DEPARTMENT OF AGRICULTURE

## ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION

## Aspen Sucker Growing from an Engelmann Spruce Stump

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A root from an adjacent aspen entered the base of a spruce stump, grew upward nearly to the top, then back down into the soil on the other side. This path suggests that some mechanism tends to keep lateral aspen roots near the substrate surface. The root later produced a sucker through the top of the stump.

Keywords: *Picea engelmannii*, *Populus tremuloides*.

In June 1951, fire destroyed an extensive forest on Escudilla Mountain in Arizona. Parts of the burn were quickly occupied by dense stands of root suckers from fire-killed quaking aspen (*Populus tremuloides* Michx.) that had grown in the pre-fire mixed conifer forest.

In October 1973, what appeared to be an aspen seedling was found growing from the stump of

an Engelmann spruce (*Picea engelmannii* Parry) on the area, beneath a small gap in the canopy of 10 m aspens. Aspen seedlings have only occasionally been reported from the western United States (Barnes 1966, Ellison 1943, Larson 1944), and apparently never from a stump or fallen tree. It was therefore photographed (fig. 1) and the stump dug apart to examine the aspen root system.



Figure 1.—Stump of fire-killed spruce  
with small aspen growing from top.

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The "seedling" proved to be a root sucker. In 1967 a lateral root from a nearby aspen had penetrated the base of the spruce stump from one side, grown upward nearly to the top of the

stump, and, a year later, back into the soil on the other side (fig. 2). In 1971 it produced the sucker.

Aspen characteristically has many lateral roots, mainly within about 60 cm of the soil surface. It is these that sprout to produce new

aspen stems, mostly at depths of only 10-15 cm (Baker 1925, Barnes 1966, Day 1944, Gifford 1966, Weigle and Frothingham 1911). Behavior of the root reported here suggests a strong physiological mechanism tending to keep such roots close to the substrate surface.



Figure 2.—Aspen root, with sucker, exposed by breaking away the decayed spruce stump.

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